

What is claimed is:

- 1 1. A storage system comprising:
2 a storage medium containing blocks identified by block addresses, the storage
3 medium to store data in hierarchical data structures, each hierarchical data structure
4 containing plural levels of data objects, and each hierarchical data structure stored in a
5 respective group of the blocks; and
6 a controller to:
7 in response to a request containing an identifier of at least one of the
8 hierarchical data structures, generate one or more block addresses based on the
9 identifier; and
10 access one or more blocks indicated by the one or more block
11 addresses.
- 1 2. The storage system of claim 1, further comprising a storage location to store
2 information to convert identifiers of hierarchical data structures to respective ranges
3 of block addresses.
- 1 3. The storage system of claim 2, wherein the storage location is part of the
2 controller.
- 1 4. The storage system of claim 2, wherein the storage location is part of the
2 storage medium.
- 1 5. The storage system of claim 1, wherein the request comprises one of a read
2 and write request.
- 1 6. The storage system of claim 1, wherein the request comprises another
2 identifier to identify one of the data objects in the hierarchical data structure.

- 1 7. The storage system of claim 6, wherein the request comprises one or plural
2 pointers to point to one or more locations within the data object identified by the
3 another identifier.
- 1 8. The storage system of claim 1, wherein each hierarchical data structure
2 comprises data objects sharing a common characteristic.
- 1 9. The storage system of claim 8, wherein each hierarchical data structure
2 comprises a root data object and additional data objects at lower levels of the
3 hierarchical data object.
- 1 10. The storage system of claim 1, wherein at least one of the data objects is
2 associated with a function invocable by the request to perform a predefined task.
- 1 11. The storage system of claim 10, wherein at least one of the data objects is
2 associated with an attribute accessible by the request.
- 1 12. The storage system of claim 1, wherein at least some of the data objects are
2 associated with respective functions invocable by one or more requests to perform
3 predefined tasks.
- 1 13. The storage system of claim 12, wherein the at least some of the data objects
2 are associated with attributes defining characteristics of respective data objects.
- 1 14. The storage system of claim 1, wherein each hierarchical data structure
2 includes at least one leaf object, a root object, and at least one intermediate object
3 coupled between the leaf object and the root object.

1 15. A method of accessing data, comprising:
2 storing, by a storage system, data in hierarchical data structures, each
3 hierarchical data structure containing plural levels of data objects;
4 receiving, at the storage system, a request containing an identifier of one of the
5 hierarchical data structures; and
6 converting, by the storage system, the identifier to one or more block
7 addresses to specify corresponding blocks in a storage medium.

1 16. The method of claim 15, wherein receiving the request comprises receiving
2 the request from a host system.

1 17. The method of claim 16, wherein receiving the request comprises receiving
2 the request in which the identifier is not translated by the host system.

1 18. The method of claim 15, further comprising storing a table of identifiers and
2 corresponding block addresses in the storage system,
3 wherein converting the identifier to the one or more block addresses is based
4 on the table.

1 19. The method of claim 15, wherein receiving the request comprises receiving
2 the request that further includes another identifier to identify one of the data objects in
3 the one hierarchical data structure.

1 20. An article comprising at least one storage medium containing instructions that
2 when executed cause a storage system to:
3 store data in hierarchical data structures, each hierarchical data structure
4 containing plural levels of data objects, and each hierarchical data structure stored in a
5 respective group of blocks of a storage medium in the storage system;
6 receive a request containing an identifier of one of the hierarchical data
7 structures; and
8 convert the identifier to one or more block addresses to specify corresponding
9 blocks in the storage medium of the storage system.

1 21. The article of claim 20, wherein the instructions when executed cause the
2 storage system to further store functions associated with data objects of the
3 hierarchical data structure, each function to perform a predefined task on a respective
4 data object.

1 22. The article of claim 21, wherein the instructions when executed cause the
2 storage system to further:
3 receive a second request; and
4 invoke at least one function associated with at least one of the data objects in
5 response to the second request.

1 23. The article of claim 22, wherein the instructions when executed cause the
2 storage system to further:
3 store attributes associated with the data objects;
4 receive a third request; and
5 access attributes associated with at least one of the data objects in response to
6 the third request.

1 24. The article of claim 20, wherein receiving the request comprises receiving a
2 request containing a second identifier to identify one of the data objects in the one
3 hierarchical data structure.